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EXAMINER	
HUANG, WEN WU	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/502,502	LU ET AL.	
	Examiner	Art Unit	
	WEN W. HUANG	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-20 and 22-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-20 and 22-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/14/08,1/4/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 3-20 and 22-24 are pending.

Claims 1, 2 and 21 are cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby (US. 6,856,604 B2) in view of Hayama et al. (US. 7,006,484; hereinafter "Hayama")

Regarding **claim 14**, Lundby teaches a method for providing a real-time broadcast service in a mobile communication system (see Lundby, col. 1, lines 61-64), the mobile communication system comprising a radio access network and a plurality of mobile terminals (see Lundby, fig. 1), wherein the radio access network has an original service hierarchy, and the original service hierarchy is divided into cells and provides original services using scrambling codes of the original service hierarchy (see Lundby, col. 1, lines 32-52); the method comprising:

adding a broadcast service hierarchy into the radio access network (see Lundby, col. 6, lines 5-16), dividing the broadcast service hierarchy into cells (see Lundby, col. 1,

lines 31-51 and fig. 1, BTS 14a-c), assigning downlink special scrambling code for the broadcast service hierarchy (see Lundby, col. 6, lines 53-55), wherein the downlink special scrambling code is different from the scrambling codes of the original service hierarchy (see Lundby, col. 7, lines 36-37); and

superposing locations of the cells of the broadcast service hierarchy over those of the original service hierarchy (see Lundby, fig. 1, BTS 14a-c) so as to form the structure of the cells of the original service hierarchy plus the cells of the broadcast service hierarchy (see Lundby, col. 7, lines 51-57), wherein the cells of the broadcast service hierarchy utilize the same downlink special scrambling code for transmitting the real-time broadcast service (see Lundby, col. 6, lines 45-47);

any of the mobile terminals implementing the original services using the scrambling codes of the original service hierarchy (see Lundby, col. 1, lines 46-48; 3GPP TS 25.213, page 20, downlink scrambling codes), receiving the real-time broadcast service using the downlink special scrambling code (see Lundby, col. 6, lines 45-47).

Lundby is silent to teaching that using the same downlink special scrambling code to broadcast the same content of the real-time broadcast service to the mobile terminals in the cells of the broadcast service hierarchy and the signals of the real-time broadcast service transmitted in the cells of the broadcast service hierarchy are the same. However, the claimed limitation is well known in the art as evidenced by Hayama.

In the same field of endeavor, Hayama teaches a method using the same downlink special scrambling code to broadcast the same content of the real-time

broadcast service to the mobile terminals in the cells of the broadcast service hierarchy and the signals of the real-time broadcast service transmitted in the cells of the broadcast service hierarchy are the same (see Hayama, fig. 16, SQ852; col. 17, lines 42-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby with the teaching of Hayama in order to provide a broadcasting/multicasting system which may varying information amount and the quality of service according to radio environment (see Hayama, col. 1, lines 45-55).

Regarding **claim 15**, the combination of Lundby and Hayama also teaches the method according to claim 14, wherein the process of assigning downlink special scrambling cods in the broadcast service hierarchy comprising adding a scrambling operation using the downlink special scrambling code in the base station sender of each cell in the original service hierarchy (see Lundby, col. 6, lines 45-47), wherein the information of the broadcast service hierarchy and that of the original service hierarchy either share the same power amplifier or utilizes respective power amplifiers (see Hayama, fig. 8, amplifiers 410-413).

2. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby and Hayama as applied to claim 15 above, and further in view of Nakagawa et al. (US. 6,256,508 B1; hereinafter "Nakagawa").

Regarding **claim 15**, the combination of Lundby and Hayama also teaches the method according to claim 14, wherein the process of assigning downlink special scrambling cods in the broadcast service hierarchy comprising adding a scrambling operation using the downlink special scrambling code in the base station sender of each cell in the original service hierarchy (see Lundby, col. 6, lines 45-47).

The combination of Lundby and Hayama is silent to teaching that wherein the information of the broadcast service hierarchy and that of the original service hierarchy either share the same power amplifier or utilizes respective power amplifiers. However, the claimed limitation is well known in the art as evidenced by Nakagawa.

In the same field of endeavor, Nakagawa teaches a method for providing a real-time broadcast service in a mobile communication system wherein the information of the broadcast service hierarchy and that of the original service hierarchy either share the same power amplifier or utilizes respective power amplifiers (see Nakagawa fig. 14A, component 143).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby and Hayama with the teaching of Nakagawa in order to mitigate the interference between wide area broadcasting (i.e. broadcast service) and local area broadcasting (i.e. original service).

Regarding **claim 16**, the combination of Lundby and Hayama teaches the method according to claim 15.

The combination of Lundby and Hayama is silent to teaching that wherein process of the sender includes performing modulation and spectrum spreading for the original service and real-time broadcast service; the modulation and spectrum spreading for the original service includes source encoding, channel encoding, Quaternary Phrase-Shift Keying (QPSK), spectrum spreading and scrambling the spectrum spread results utilizing the down-link scrambling codes of each cell for the original service; the modulation and spectrum spreading for the real-time broadcast service includes source encoding, channel encoding, QPSK, spectrum spreading and scrambling the spectrum spread results utilizing the down-link special scrambling codes for the real-time broadcast service. However, the claimed limitation is well known in the art as evidenced by Nakagawa.

In the same field of endeavor, Nakagawa teaches a method for providing a real-time broadcast service in a mobile communication system wherein process of the sender includes performing modulation and spectrum spreading for the original service and real-time broadcast service (see Nakagawa fig. 14A, component 143); the modulation and spectrum spreading for the original service includes source encoding, channel encoding, Quaternary Phrase-Shift Keying (QPSK), spectrum spreading and scrambling the spectrum spread results utilizing the down-link scrambling codes of each cell for the original service (see Lundby, col. 1, lines 46-48; 3GPP TS 25.213, page 20, downlink scrambling codes); the modulation and spectrum spreading for the real-time broadcast service includes source encoding, channel encoding, QPSK, spectrum

spreading and scrambling the spectrum spread results utilizing the down-link special scrambling codes for the real-time broadcast service (see Lundby, col. 6, lines 45-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby and Hayama with the teaching of Nakagawa in order to mitigate the interference between wide area broadcasting (i.e. broadcast service) and local area broadcasting (i.e. original service).

3. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aaltonen et al. (US. 7,103,311 B2; hereinafter "Aaltonen") in view of Nakagawa.

Regarding **claim 3**, Aaltonen teaches a method for providing a real-time broadcast service in a mobile communication system (see Aaltonen, fig. 1), the mobile communication system comprising a radio access network and a plurality of mobile terminals, wherein the radio access network has an original service hierarchy, and the original service hierarchy is divided into cells and provides original services using carrier frequencies of the original service hierarchy (see Aaltonen, col. 1, lines 8-28); the method comprising:

adding a broadcast service hierarchy into the radio access network (see Aaltonen (see Aaltonen, col. 5, lines 48-60), assigning downlink special carrier frequency for the broadcast service hierarchy (see Aaltonen, col. 5, line 50, f8), and broadcasting the real-time broadcast service to the mobile terminals through the downlink special carrier frequency (see Aaltonen, fig. 4b, col. 4, lines 66-67 and col. 5,

lines 8-13), wherein the downlink special carrier frequency (see Aaltonen, col. 5, lines 48-50, f8) is different from the carrier frequencies of the original service hierarchy (see Aaltonen, fig. 1, col. 1, lines 24-27, f1-f7);

dividing the broadcast service hierarchy into cells (see Aaltonen, col. 5, lines 48-49; cells A to K), all the cells of the broadcast service hierarchy employing the same downlink special carrier frequency (see Aaltonen, col. 5, line 50, f8), the adjacent cells defining multiple cells into a location area (see Aaltonen, col. 5, lines 30-32, SFN, single frequency network), and transmitting the same content of the real-time broadcast service in the cells of the broadcast service hierarchy (see Aaltonen, fig. 4b, col. 4, lines 66-67 and col. 5, lines 8-13);

any of the mobile terminals implementing the original services using the carrier frequencies of the original service hierarchy (see Aaltonen, col. 1, lines 21-26, fig. 1), receiving the real-time broadcast service suing the downlink special carrier frequency (see Aaltonen, col. 5, lines 48-50, f8).

Aaltonen is silent to teaching that wherein the adjacent cells of the broadcast service hierarchy employing different scrambling codes. However, the claimed limitation is well known in the art as evidenced by Nakagawa.

In the same field of endeavor, Nakagawa teaches a method for providing a real-time broadcast service in a mobile communication system wherein the adjacent cells of the broadcast service hierarchy employing different scrambling codes (see Nakagawa, fig. 4, "ss method for local area broadcasting", col. 6, lines 20-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen with the teaching of Nakagawa in order to mitigate the interference between wide area broadcasting (i.e. broadcast service) and local area broadcasting (i.e. original service).

Regarding **claim 6**, the combination of Aaltonen and Nakagawa also teaches the method according to claim 3, wherein the scrambling codes in the broadcast service hierarchy and those in the original service hierarchy are either the same or different; the cells of the broadcast service hierarchy and those of the original service hierarchy are either superposed or not (see Nakagawa, fig. 1 and fig. 4).

4. Claims 5, 7 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aaltonen and Nakagawa as applied to claim 3 above, and further in view of Leung et al. (US. Pub No. 2003/0087653 A1; hereinafter "Leung 653").

Regarding **claim 5**, the combination of Aaltonen and Nakagawa teaches the method according to claim 4.

The combination of Aaltonen and Nakagawa is silent to teaching that wherein said cell information includes location area code and paging channel configuration information of the cell in the broadcast service hierarchy, and carrier frequencies, scrambling codes, Random Access Channel (RACH), an AICH public channel relating to RACH and Forward Access Channel (FACH) of the adjacent cells in the original

service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein said cell information includes location area code and paging channel configuration information of the cell in the broadcast service hierarchy, and carrier frequencies, scrambling codes (see Leung 653, para. [0051], lines 12-15 and 19-25), Random Access Channel (RACH), an AICH public channel relating to RACH and Forward Access Channel (FACH) of the adjacent cells in the original service hierarchy (see Leung 653, para. [0053]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 7**, the combination of Aaltonen and Nakagawa teaches the method according to claim 3.

The combination of Aaltonen and Nakagawa is silent to teaching that wherein the handoff includes location update which is triggered when the mobile terminal switches between the broadcast service hierarchy and the original service hierarchy, and when the location area of the mobile terminal changes in the broadcast service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein the handoff includes location update (see Leung 653, para. [0107], lines 5-6) which is triggered when the mobile terminal switches between the broadcast service hierarchy and the original service hierarchy (see Leung 653, para. [0107], lines 10-11), and when the location area of the mobile terminal changes in the broadcast service hierarchy (see Leung 653, para. [0107], lines 3-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 9**, the combination of Aaltonen and Nakagawa teaches the method according to claim 3.

The combination of Aaltonen and Nakagawa is silent to teaching that wherein the process of monitoring paging in the broadcast service hierarchy mode comprising: the radio access network selecting a cell in a corresponding location area according to the received location information of the mobile terminal, and sending downlink paging information according to the carrier frequency of the broadcast service hierarchy or the carrier frequency of the original service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein the process of monitoring paging in the broadcast service hierarchy mode comprising: the radio access

network selecting a cell in a corresponding location area according to the received location information of the mobile terminal, and sending downlink paging information according to the carrier frequency of the broadcast service hierarchy or the carrier frequency of the original service hierarchy (see Leung 653, para. [0107], lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 10**, the combination of Aaltonen and Nakagawa teaches the method according to claim 3.

The combination of Aaltonen and Nakagawa is silent to teaching that further comprising: after switching from the broadcast service hierarchy to the original service hierarchy, the mobile terminal making a reply or initiating a call in the original service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein after switching from the broadcast service hierarchy to the original service hierarchy, the mobile terminal making a reply or initiating a call in the original service hierarchy (see Leung 653, para. [0107], lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa

with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 11**, the combination of Aaltonen, Nakagawa and Leung 653 also teaches the method according to claim 10, wherein the process of making a reply or initiating a call further comprising: sending information of the adjacent cells in the original service hierarchy utilizing the broadcast channel of the broadcast service hierarchy (see Leung 653, para. [0108]).

Regarding **claim 12**, the combination of Aaltonen and Nakagawa teaches the method according to claim 3.

The combination of Aaltonen and Nakagawa is silent to teaching that wherein the mobile terminal shares a set of receiving system and synchronizing system with other mobile terminals in the broadcast service hierarchy and the original service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein the mobile terminal shares a set of receiving system and synchronizing system with other mobile terminals in the broadcast service hierarchy and the original service hierarchy (see Leung 653, para. [0053]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa

with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 13**, the combination of Aaltonen and Nakagawa teaches the method according to claim 3.

The combination of Aaltonen and Nakagawa is silent to teaching that wherein the mobile terminal utilizes a different receiving system, and shares a set of synchronizing system with other mobile terminals in the broadcast service hierarchy and the original service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein the mobile terminal utilizes a different receiving system, and shares a set of synchronizing system with other mobile terminals in the broadcast service hierarchy and the original service hierarchy (see Leung 653, para. [0053]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

5. Claims 4, 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aaltonen and Nakagawa as applied to claim 3 above, and further in view of Leung

et al. (US. Pub No. 2003/0087653 A1; hereinafter "Leung 653") and Leung (US. Pub No. 2003/0078044 A1; hereinafter "Leung 044").

Regarding **claim 4**, the combination of Aaltonen and Nakagawa teaches the method according to claim 3.

The combination of Aaltonen and Nakagawa is silent to teaching that further comprising:

setting a broadcast channel for broadcasting corresponding cell information and paging channel for a paging mobile terminals in the cell of broadcast service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung.

In the same field of endeavor, Leung 653 teaches that comprising

setting a broadcast channel for broadcasting corresponding cell information (see Leung 653, para. 0053).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

The combination of Aaltonen, Nakagawa and Leung 653 is silent to teaching that comprising paging channel for a paging mobile terminals in the cell of broadcast service hierarchy.

In the same field of endeavor, Leung 044 teaches that comprising paging channel for a paging mobile terminals in the cell of broadcast service hierarchy (see Leung 044, para. [0057], lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art as the time of the invention was made to combine the teaching of Aaltonen, Nakagawa and Leung 653 with the teaching of Leung 044 in order to implement handoff in a broadcasting system (see Leung 044, para. [0011]).

Regarding **claim 8**, the combination of Aaltonen, Nakagawa and Leung 653 also teaches the method according to claim 7, wherein the process of triggering location update when the location area changes in the broadcast service hierarchy comprising: the mobile terminal obtaining information of cells in the original service hierarchy from the broadcast channel of the broadcast service hierarchy, the cells in the original service hierarchy are adjacent to the current cell of the broadcast service hierarchy (see Leung 653, para. [0043], lines 9-14).

The combination of Aaltonen, Nakagawa and Leung 653 is silent to teaching that wherein finding a cell in the original service hierarchy where the mobile terminal can stay, and sending a random access request utilizing the Random Access Channel (RACH) in the cell of the original service hierarchy; after receiving AICH information from the cell of the original service hierarchy, the mobile terminal tuning the receiving frequency to the downlink carrier frequency, starting search and synchronization for the current cell of the broadcast service hierarchy, meanwhile sending a message

containing location update information to the radio access network utilizing the uplink carrier frequency of the original service hierarchy, and waiting to receive a location update confirming message at the current cell of the broadcast service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 044.

In the same field of endeavor, Leung 044 teaches that wherein finding a cell in the original service hierarchy where the mobile terminal can stay, and sending a random access request utilizing the Random Access Channel (RACH) in the cell of the original service hierarchy (see Leung 044, para. [0057], lines 1-10); after receiving AICH information from the cell of the original service hierarchy, the mobile terminal tuning the receiving frequency to the downlink carrier frequency, starting search and synchronization for the current cell of the broadcast service hierarchy (see Leung 044, para. [0058]), meanwhile sending a message containing location update information to the radio access network utilizing the uplink carrier frequency of the original service hierarchy, and waiting to receive a location update confirming message at the current cell of the broadcast service hierarchy (see Leung 044, para. [0054]).

Therefore, it would have been obvious to one of ordinary skill in the art as the time of the invention was made to combine the teaching of Aaltonen, Nakagawa and Leung 653 with the teaching of Leung 044 in order to implement handoff in a broadcasting system (see Leung 044, para. [0011]).

Regarding **claim 22**, the combination of Aaltonen and Nakagawa teaches the method according to claim 3.

The combination of Aaltonen and Nakagawa is silent to teaching that wherein the mobile terminal switching between the original service hierarchy and the broadcast service hierarchy, and when switching to the broadcast service hierarchy, the mobile terminal staying in a cell of the broadcast service hierarchy, controlling handoff of the cell, and monitoring paging of the cell in the broadcaster service hierarchy. However, the claimed limitation is well known in the art as evidenced by Leung 653 and Leung 044.

In the same field of endeavor, Leung 653 teaches that wherein the mobile terminal switching between the original service hierarchy and the broadcast service hierarchy (see Leung 653, para. [0060], lines 4-6, interested mobiles), and when switching to the broadcast service hierarchy, the mobile terminal staying in a cell of the broadcast service hierarchy (see Leung 653, para. [0043], lines 1-2) and monitoring paging of the cell in the broadcaster service hierarchy (see Leung 653, para. [0107], lines 10-11).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Aaltonen and Nakagawa with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

The combination of Aaltonen, Nakagawa and Leung 653 is silent to teaching that when switching to the broadcast service hierarchy controlling handoff of the cell. However, the claimed limitation is well known in the art as evidenced by Leung 044.

In the same field of endeavor, Leung 044 teaches that when switching to the broadcast service hierarchy controlling handoff of the cell (see Leung 044, para. [0057], lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art as the time of the invention was made to combine the teaching of Aaltonen, Nakagawa and Leung 653 with the teaching of Leung 044 in order to implement handoff in a broadcasting system (see Leung 044, para. [0011]).

6. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby and Hayama as applied to claim 14 above, and further in view of Leung 653 (and US. 5,101,501 incorporated by Leung 653).

Regarding **claim 17**, the combination of Lundby and Hayama teaches the method according to claim 14.

The combination of Lundby and Hayama is silent to teaching that wherein the demodulation unit of RAKE receiver of the mobile terminal adopts downlink special scrambling codes for specially receiving the real-time broadcast service; after the signals pass the RAKE receiver, the signal of original service and the signal of broadcast service are separated, and channel decoding and source decoding of the original service and those of real-time broadcast service implemented separately; the channel code of RAKE receiver is the special broadcast channel code, namely the

downlink special scrambling code. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung teaches that that wherein the demodulation unit of RAKE receiver of the mobile terminal adopts downlink special scrambling codes for specially receiving the real-time broadcast service; after the signals pass the RAKE receiver, the signal of original service and the signal of broadcast service are separated, and channel decoding and source decoding of the original service and those of real-time broadcast service implemented separately; the channel code of RAKE receiver is the special broadcast channel code, namely the downlink special scrambling code (see Leung 653, para. [0043], lines 9-13; and see U.S. Pat. No. 5,101,501 incorporated by Leung 653; fig. 2, components 40 and 42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby and Hayama with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 18**, the combination of Lundby and Hayama teaches the method according to claim 14.

The combination of Lundby and Hayama is silent to teaching that wherein said structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy is that range and location division of the cell of the original service hierarchy plus the broadcast service hierarchy is the same as that of the original service

macro cell coving hierarchy in which the mobile network is covered by the macro cells. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein said structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy is that range and location division of the cell of the original service hierarchy plus the broadcast service hierarchy is the same as that of the original service macro cell coving hierarchy in which the mobile network is covered by the macro cells (see Leung 653, fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby and Hayama with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 19**, the combination of Lundby and Hayama teaches the method according to claim 14.

The combination of Lundby and Hayama is silent to teaching that wherein the mobile terminal supports real-time broadcast service under both idle mode and connecting mode, the method further comprising:

keeping the mobile terminal under idle mode for the original service when the mobile terminal switches to the broadcast service hierarchy;

when the mobile terminal is located in a macro cell, according to the channel estimation result for the public pilot frequency of this cell and the channel estimation

result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel;

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service;

when the mobile terminal is located in a micro cell or a pico cell, according to the channel estimation result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel;

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that wherein the mobile terminal supports real-time broadcast service under both idle mode and connecting mode (see Leung 653, para. [0110]), the method further comprising:

keeping the mobile terminal under idle mode for the original service when the mobile terminal switches to the broadcast service hierarchy (see Leung 653, para. [0110]);

when the mobile terminal is located in a macro cell, according to the channel estimation result for the public pilot frequency of this cell and the channel estimation result for the public pilot frequency of one or multiple adjacent cells with powerful

signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel (see Leung 653, para. [0043]);

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service (see Leung 653, para. [0107]);

when the mobile terminal is located in a micro cell or a pico cell, according to the channel estimation result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel (see Leung 653, para. [0043], lines 9-13);

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service (see Leung 653, para. [0107] and para. [0040]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby and Hayama with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Regarding **claim 20**, the combination of Lundby and Hayama teaches the method according to claim 14, comprising subtracting this interference value from the received signal (see Hayama, col. 13, lines 25-30).

The combination of Lundby and Hayama is silent to teaching that further comprising: the mobile terminal evaluating the interference value to a service channel

caused by the downlink special scrambling codes according to the demodulated special broadcast channel data and the information of channel transmission condition, scrambling code and channel code. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that further comprising: the mobile terminal evaluating the interference value to a service channel caused by the downlink special scrambling codes according to the demodulated special broadcast channel data and the information of channel transmission condition, scrambling code and channel code(see Leung 653, para. [0043]; and see U.S. Pat. No. 5,101,501 incorporated by Leung 653; fig. 2, component 48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby and Hayama with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby and Hayama as applied to claim 15 above, and further in view of Leung 653.

Regarding **claim 23**, the combination of Lundby, Hayama and Nakagawa teaches the method according to claim 15.

The combination of Lundby, Hayama and Nakagawa is silent to teaching that further comprising: the mobile terminal switching between the original service hierarchy

and the broadcast service hierarchy, wherein the working mode of the mobile terminal keeps unchanged for the original service, pilot channel of the cells in the original service hierarchy is shared, and the real-time broadcaster service is supported under both idling mode and connecting mode. However, the claimed limitation is well known in the art as evidenced by Leung 653.

In the same field of endeavor, Leung 653 teaches that comprising the mobile terminal switching between the original service hierarchy and the broadcast service hierarchy (see Leung 653, para. [0035], lines 18-20; "tune in" to the broadcast service hierarchy), wherein the working mode of the mobile terminal keeps unchanged for the original service, pilot channel of the cells in the original service hierarchy is shared, and the real-time broadcaster service is supported under both idling mode and connecting mode (see Leung 653, para. [0053]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Lundby, Hayama and Nakagawa with the teaching of Leung 653 in order to provide a high speed broadcast service (see Leung 653, para. [0034]).

Response to Arguments

Applicant's arguments with respect to claims 14, 15 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 3, the Applicant argues that Aaltonen is silent to teaching dividing the broadcast service hierarchy into cells. However, the Examiner respectfully disagrees.

More specifically, fig. 3 of Aaltonen clearly shows a broadcast service hierarchy is divided into cells A-K (see Aaltonen, col. 5, lines 48-49; cells A to K). Thus, the Examiner submits that Aaltonen teaches dividing the broadcast service hierarchy into cells.

Furthermore, the Applicant argues that Nakagawa is silent to teaching transmitting the same content of the real-time broadcast service in the cells of the broadcast service hierarchy. However, the claimed submits that Aaltonen teaches transmitting the same content of the real-time broadcast service in the cells of the broadcast service hierarchy (see Aaltonen, fig. 4b, col. 4, lines 66-67 and col. 5, lines 8-13).

Regarding claim 17, the Applicant argues that the separation of broadcast signal and original signal is not taught by the correlation of PN code. However, the Examiner respectfully disagrees.

More specifically, the Examiner submits that a received original signal is correlated with a correct PN code to obtain the broadcast signal. Thus, prior art separating the broadcast signal and original signal by correlating the correct PN code.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEN W. HUANG whose telephone number is (571)272-7852. The examiner can normally be reached on 10am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/W. W. H./
Examiner, Art Unit 2618

/Matthew D. Anderson/

Supervisory Patent Examiner, Art Unit 2618